

How is a Work Breakdown Structure developed?

These methods are offered to assist the Planning Phase Team in the basic efforts associated with developing a Work Breakdown Structure (WBS) (project schedule).

All Planning Phase Team members are responsible for development of the WBS. However, the Project Manager carries primary responsibility in the completion of this document.

Defining Tasks or Activities

Tasks are assignments of work which cumulatively produce the deliverables and accomplish the business goals of a project. WBS tasks are developed by asking, "What tasks need to be done to accomplish the project objective?"

Task Development

The WBS development process may be started using a facilitated workshop session with the Planning Phase Team. Parent (or high level) tasks are identified during this session.

The next step would be to decompose the Parent tasks and develop Children (detailed level) tasks. This may also be accomplished using a facilitated workshop session with the Planning Phase Team or you may wish to identify work teams and have them develop these detailed tasks outside the meeting. The detailed tasks can then be shared with the entire Planning Phase Team for review and comment.

Tasks are unique items of work for which responsibility can be assigned.

Tasks are broken down until accurate estimates of duration, resources and cost can be reasonably made. Parent (or high level) tasks can be identified first. The Parent (or high level) tasks can then be decomposed to develop the associated children tasks.

Each child task should begin with an action verb.

If the task is not on the WBS, it should not be worked on unless the WBS is adjusted.

Estimating Task Work Effort, Durations and Resources

The next step to development of the WBS is the estimation of task work effort, duration and resources. It is helpful to complete these three estimations concurrently, as each affect the other.

In developing these estimations be sure to keep in mind the 8/80 Rule:

Tasks should not be less than 8 hours of work time and should not exceed 80 hours of elapsed time.

The task work effort and duration are rarely overestimated, but are frequently underestimated.

The estimation process is complex because task work effort and duration is affected by numerous variables that must be dealt with concurrently in the planning phase. Some of these variables include staff availability, the skill level of the person assigned to the task, unexpected events, efficiency of work time, and mistakes and misunderstandings during the development of the project plan.

When estimating the duration of a task, reality is a major factor. Estimating should take into account absenteeism, holidays, vacations, meetings, discussions, and interaction among the staff. No one is 100% productive every hour of the workday. If a scheduled task assumes 100% productivity, the schedule rapidly falls apart. Standards currently used consider 6.5 hours as a productive workday.

Identifying Task Dependencies

If tasks are dependent on each other, the task dependencies should be indicated. That is, if one task must be completed before another, then the first is a predecessor to the second, and the second task is a successor to the first. This relationship would be a Finish-to-Start relationship, i.e., the first task must finish before the second task can begin.

Task relationships include:

Finish-to-Start - this task must finish before the second task can begin.

Start-to-Finish - this task must start before the previous one can finish

Start-to-Start - this task must start at the same time as the other task

Finish-to-Finish - this task must finish at the same time as the other task.

Identifying Milestones

Important and significant events are tracked using milestones. Deliverables associated with tasks are also shown in the WBS as 'milestones'. The milestone itself has no work effort and has a duration of zero days. Milestones are usually the result of a series of tasks.

Resource Leveling

It is strongly suggested that the Resource Usage in the Work Breakdown Structure (WBS) (found in Microsoft Project under the View pull down menu) be reviewed. This view displays resources that may be over allocated and in need of leveling.

An over allocated resource has more work assigned than can be done in the resource's available time. Resource leveling is a way to resolve having too much work assigned to the resource.

An example would be a resource who has Max Units of 80%, indicating this resource is only available to the project 80% of the time. This resource consistently works 9 to 13 hours per day. It's not until you level this resource over allocation that this conflict is resolved.

Over allocated resources present a high risk factor to successful completion of the project on time and within budget.